RINGKASAN

Ginjal merupakan organ penting yang sangat rentan terhadap kerusakan akibat senyawa toksik seperti karbon tetraklorida (CCl_4). Senyawa ini merupakan salah satu penghasil radikal bebas yang menyebabkan timbulnya peroksidasi lipid sehingga dapat merusak ginjal. Kerusakan ginjal akibat adanya radikal bebas dapat dicegah dengan memberi agen protektif berupa antioksidan eksogen seperti *Chlorella vulgaris*. Penelitian ini dilakukan secara eksperimental dengan Rancangan Acak Lengkap (RAL) menggunakan Tikus Putih Wistar (*Rattus norvegicus*). Variabel bebas dari penelitian ini berupa dosis ekstrak *C.vulgaris*, sedangkan variabel terikat berupa gambaran histopatologis ginjal. Dosis ekstrak *C. vulgaris* yang digunakan sebanyak 3 mg, 4 mg, dan 5 mg per 100 gram BB tikus. Pemberian ekstrak *C. vulgaris* dilakukan selama 30 hari. Sedangkan induksi CCl_4 sebanyak 0.25 ml/100 g BB diberikan secara oral pada hari di hari ke- 9, 12, 16, 19, 23, dan hari ke- 26. Parameter yang diamati yakni gambaran histopatologis kerusakan ginjal, proporsi kerusakan sel tubulus, dan diameter *Bowman's space*. Data kualitatif yang didapat dianalisis secara desktiptif, sedangkan data kuantitatif dianalisis secara statistik menggunkan ANOVA dan uji lanjut BNJ (HSD Tukey). Hasil analisis data menunjukkan bahwa pemberian ekstrak *C. vulgaris* mampu mengurangi dampak kerusakan yang ditimbulkan oleh CCl_4 ($p < 0,05$). Hal ini didukung dengan pengamatan histologis yang menunjukkan berkurangnya jumlah sel piknotik dan sel yang mengalami vakuolasi, kondisi *brush border* yang normal, dan mengecilnya diameter *Bowman's space*. Berdasarkan hasil penelitian bisa ditarik kesimpulan bahwa dosis *C.vulgaris* sebesar 5 mg/100 g BB mampu secara efektif melindungi ginjal dari kerusakan akibat CCl_4 yang ditunjukkan hasil uji lanjut HSD Tukey dengan nilai $p < 0,05$.

Kata Kunci: *C. vulgaris*, Ginjal, *R. norvegicus*, Karbon Tetraklorida.

SUMMARY

The kidney is an important organ that is very susceptible to damage by toxicological compounds such as carbon tetrachloride (CCl_4). This compound is one of the free radical producers that cause the emergence of lipid peroxidation that can damage the kidneys. Renal damage due to the presence of free radicals can be prevented by giving protective agents of exogenous antioxidants such as Chlorella vulgaris. This study was conducted experimentally with Completely Randomized Design (RAL) using Wistar White Rat (Rattus norvegicus). The independent variables of this study were doses of C.vulgaris' extract while the dependent variable was histopathologic features of the kidneys. The dose of C. vulgaris' extract used was 3 mg, 4 mg, and 5 mg per 100 grams of rat BB. The extract of C. vulgaris was performed for 30 days. While the CCl4 induction as much as 0.25 ml / 100 g BB was administered orally on the day of day 9, 12, 16, 19, 23, and day 26. Parameters observed were histopathologic features of renal damage, the proportion of tubular cell damage, and Bowman's space diameter. Qualitative data were analyzed descriptively, while the quantitative data were analyzed statistically using ANOVA and BNJ (HSD Tukey) advanced test. The results of data analysis showed that administration of C. vulgaris extracts able to reduce the impact of damage caused by CCl4 ($p < 0,05$). This is supported by histologic observations showing a decrease in the number of pyknotic cells and vacuolated cells, normal brush border conditions, and a decrease in Bowman's space. Based on this research found that dose of 5 mg / 100 g BB able to effectively protect the kidney from damage caused by CCl4 shown by Tukey HSD test result with $p < 0,05$.

Keywords: *C. vulgaris*, kidney, Histopatologis, *R. norvegicus*, carbon tetrachloride.